DOCUMENT RESUME

ED 053 561 24 EM 009 143

AUTHOR	Drier, Harry N.; Jepsen, David A.
TITLE	The Use of Television and Video Tape Compared to Researching Printed Career Information as a Means of Assisting Rural 9th Grade Youth Career Decision Making Process./Research Report.
INSTITUTION	Iowa Univ., Iowa City.; Wisconsin State Dept. of Public Instruction, Madison.
SPONS AGENCY	Office of Education (DHEW), Washington, D.C. Bureau of Research.
BUREAU NO	BR-0-E-034
PUB DATE	28 Feb 71
GRANT	OEG-5-70-0019(509)
NOTE	44p.
EDRS PRICE	EDRS Price MF-$0.65 HC-$3.29
DESCRIPTORS	Career Planning, Grade 9, *Occupational Aspiration, Occupational Choice, *Occupational Guidance, *Occupational Information, Rural Schools, *Rural Youth, *Video Tape Recordings, Vocational Counseling, Vocational Development, Vocational Interests

ABSTRACT

A study was devised to test the hypothesis that rural ninth grade students viewing videotaped field trips as part of vocational group guidance classes will exhibit greater occupational knowledge than similar groups who do not view the videotapes. Subjects were 262 ninth grade students from four rural high schools; the schools were paired to form a control and an experimental group. Both groups met for a class period twice weekly for 14 weeks. The experimental group centered discussions and reading around 20-minute videotapes which portrayed a variety of occupations such as paper industry, machine trade, communication, office, and public utility occupations, while the control group read and discussed the same occupations using commercially produced reading materials. Responses from three questionnaires which were administered at the end of the 14-week period were analyzed. Limited positive results obtained showed that videotapes appear to influence the accuracy of stereotypes reported and to stimulate a wider range of occupational possibilities in schools where counselors are employed. Also, it appears that girls are more likely to present scattered occupational choices and less likely to seek occupational information or state positive occupational stereotypes. (SH)

ED053561

PA 24
BR 0-E-034

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
OFFICE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

SCOPE OF INTEREST NOTICE
The ERIC Facility has assigned this document for processing to: EM CG RC
In our judgement, this document is also of interest to the clearinghouses noted to the right. Indexing should reflect their special points of view.

Research Report
Project No. O-E-034
Grant No. OEG-5-70-0019 (509)

Researching Usage of Media in Career Development in Selected Wisconsin Rural Schools

authors

Harry N. Drier
Guidance Consultant
Wisconsin Department of Public Instruction
126 Langdon Street
Madison, Wisconsin

David A. Jepsen
Principal Researcher
Counselor Education Department
University of Iowa
Iowa City, Iowa

February 28, 1971

U.S. Department of
Health, Education and Welfare
Office of Education
Bureau of Research

EM 009 143

ED053561

Research Report

Project No. O-E-034
Grant of Contract No. OEG-5-70-0019 (509)

Title of Report
The Use of Television and Video Tape Compared to Researching Printed Career Information as a Means of Assisting Rural 9th Grade Youth Career Decision Making Proces

Authors

Harry N. Drier, Guidance Consultant
Wisconsin Department of Public Instruction
126 Langdon Street
Madison, Wisconsin

David Jepsen, Researcher
University of Iowa
Iowa City, Iowa

The research reported herein was performed pursuant to a grant (grant or contract) with the Office of Education, U.S. Department of Health, Education and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgement in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education Position or policy.

U.S. Department of
Health, Education, and Welfare

Office of Education
Bureau of Research

TABLE OF CONTENTS

Part I.	Introduction to the Problem	page 1
Part II.	Broadening Occupational Knowledge: Theory and Research	page 2
Part III.	Measurement of Occupational Knowledge	page 6
Part IV.	Study Procedures and Design	page 13
Part V.	Results and Discussion	page 17
Bibliography		page 21
Appendices		page 26

LIST OF TABLES

Table 1:	DESCRIPTION OF TEN SELECTED VARIABLES MEASURING OCCUPATIONAL KNOWLEDGE	page 9
Table 2:	INTER-JUDGE AGREEMENT IN SCORING OCCUPATIONAL KNOWLEDGE VARIABLES REPORTED AS PERCENTAGE OF AGREEMENT AND PRODUCT-MOMENT CORRELATIONS	page 10
Table 3:	INTERCORRELATIONS AMONG PRE-TEST OCCUPATIONAL KNOWLEDGE VARIABLES FOR STUDY SAMPLE (N=262)	page 11
Table 4:	CROSS-CORRELATIONS BETWEEN PRE-TEST AND POST-TEST OCCUPATIONAL KNOWLEDGE VARIABLES FOR STUDY SAMPLE (N=262)	page 11
Table 5:	CORRELATIONS OF OCCUPATIONAL VARIABLES (PRE-TEST AND POST-TEST)	page 12
Table 6:	INCREASES IN OCCUPATIONAL KNOWLEDGE VARIABLES FROM PRE-TEST TO POST-TEST	page 13
Table 7:	CHANGES IN LEVEL OF PREFERRED OCCUPATIONAL GOAL BY SEX AND EXPERIMENTAL CONDITION	page 18
Table 8:	CHANGES IN FIELD OF PREFERRED OCCUPATIONAL GOAL BY SEX AND EXPERIMENTAL CONDITION	page 18
Table 9:	SUMMARY OF ANALYSIS OF COVARIANCE SIGNIFICANT DIFFERENCES AMONG SELECTED GROUPS ON OCCUPATIONAL KNOWLEDGE VARIABLES	page 19
Table 10:	SUMMARY OF ANALYSIS OF COVARIANCE SIGNIFICANT DIFFERENCES BETWEEN SEXES AND SCHOOL-SEX INTERACTIONS ON OCCUPATIONAL KNOWLEDGE VARIABLES	page 20

Part I. INTRODUCTION TO THE PROBLEM

The wise selection of training and work roles by young people is important to both the selector and society at large. Economists continually remind us that intelligent utilization of human resources is vital to national progress on all fronts. Behavioral scientists point out how important work is as a source of satisfaction for individual human needs. Nevertheless it is apparent that the outcome of past decisions has not always pleased individuals or society.

The problem is especially acute in rural areas where on occasion it has been shown that youth have more limited career perspectives, lower educational and occupational aspirations (Sewell and Orenstein, 1965; Grigg and Middleton, 1960) and less available occupational information (Nelson, 1963) than their urban counterparts. Since there appears to be a moderate relationship between occupational aspiration and later work accomplishment for rural youth (Kvelsky and Beazer, 1967), these early indicators have important implications for lifetime careers. Zeisel (1964) summarizes research on the early employment experiences of rural youth by noting that they have been "less successful occupationally than urban-reared persons. Moreover, studies have shown, to an alarming degree, unrealism in the occupational expectations of rural youth which undoubtedly reflects inadequate or complete lack of competent vocational guidance."

After reviewing these results and others, Sewell and Haller (1964) drew up some suggestions for broadening the perspectives rural youth:

> "...it would appear that there is great need for in-school programs stressing educational and occupationsl guidance. Rural students, especially farm students, probably know much less about educational and occupational opportunities than do urban youths, yet very few rural high schools have guidance programs. While counseling cannot be expected to work miracles, it should be especially useful in making students aware of the range of jobs appropriate to their talents and in informing them of the educational requirements of these positions."

This study is directed to the challenge of providing effective methods of broadening the occupational perspectives of rural youth. The purpose is to test a vocational guidance technique under classroom conditions in rural high schools. Specifically, the study will focus on changes in ninth grade students' occupational knowledge associated with viewing video taped occupation field trips depicting workers in occupations common to the local region.

The hypothesis to be tested is stated as follows: Rural ninth grade student groups viewing a series of videotaped occupational field trips as a part of vocational group guidance classes will exhibit greater occupational knowledge than similar groups who do not view the video tapes.

There are obvious limitations to the scope of this problem. First, we hasten to point out it is not the efficacy of counseling or group guidance programs that is being studied but the effects of one vocational guidance technique: occupational videotapes. We are not looking at how the videotapes affect later career choices or adjustments--though they are the more ultimate criteria to be

sure--but simply the knowledge youth have as a basis for choosing, entering and progressing on a job. Finally, it should be emphasized that it is rural and ninth grade youth whose knowledge we are studying and generalizations beyong this group would be risky.

Part II. BROADENING OCCUPATIONAL KNOWLEDGE: THEORY AND RESEARCH

A career can be pictured as a sequence of decisions about work roles. The earliest decisions are about education--choice of courses, higher education, job training--while later decisions may be about military service, entry jobs, advancement, job or occupational changes. How a person acts at each career decision point is the result of a complex learning process about self and work roles.

As youths develop they acquire knowledge about several occupations, their entrance requirements, psycho-social working conditions, advancement opportunities and sources of satisfaction, as a basis for career decisions. The acquisition process is sometimes called exploratory behavior.* The personal meaning each person attaches to accumulated learning about work and workers we will call occupational knowledge. It is his personally interpreted past experience, that internalized portion of all that has happened to and about the person with reference to work. As Rusalem (1954) has said, "It is not what exists 'in reality' in a vocation which enters into occupational thinking, but what comprises the individual's personal perceptions of it."

The interpretation given experience with work has both cognitive and emotive qualities. O'Hara (1968) in positing a theory of vocational learning from occupational information, suggested that interpretation is both cognitive and emotive, but clearly emphasized cognitive changes as essential to adequate vocational development. Super (1963) describes the earliest task to be mastered in vocational development, that of crystallizing a vocational preference, as "at its best, and essentially, a cognitive process." Beilen (1963) has opted for more concentration on cognitive processes in vocational research. This project will emphasize the cognitive outcomes of occupational learning, while recognizing that is not the exclusive change.

What we are calling occupational knowledge is "stored" or "remembered" in such forms as "job perceptions" (Gonyea, 1961, 1963), "occupational stereotypes" (Walker, 1958, Guilford, 1967). "vocational images (Holland, 1963), "knowledge of occupational role and prestige" (DeFleur, 1963, Gunn, 1964), "occupational possibilities" (Tyler, 1969), and "career concepts" (Fletcher, 1966). There is considerable overlap among these constructs at the operational level. What they all seem to reflect is some aspect of what the person knows about work roles.

Clearly occupational knowledge is only an intermediate state between environmental occurences (learning situations) and later decisions. Rusalem (1964) notes how occupational knowledge may be utilized much later: "In

---

*Jordaan (1963) defines vocational exploratory behavior as activity consciously intended to elicit information or form a hypothesis which will aid in career decisions. The outcomes of products of exploratory behavior are changes in knowledge, behavior, attitudes and perceptions. The knowledge he speaks of and "occupational knowledge" as construed herein are seen as synonymous.

the exploratory phase, the person is collecting data which may be of no immediate importance to decision-making but which may remain in ground, or even become figure in later occupational differentiation." Calia (1966) aptly describes the secondary importance of knowledge to personal action: "It is not what the student selects out of the myriad of stimuli to which he is exposed that is important, but it is what he does with them after he has made his selection that is highly significant."

A person's occupational knowledge is enhanced through the kinds and amount of occupational information available to him. Occupational information includes all the "imputs" or stimuli to which a person is exposed that can be designated as related to work or workers. An informing event is overt (observable by others as well as the receiver) and provides objects, people, and events regarding work roles and functions. Informing events lead to changes in occupational knowledge when the young person is exploring and acting upon the events. The events transfer not only facts and data about occupations but impressions about Samler (1961) called the psycho-social aspects of work--"the cultural systems or sub-systems of the job, occupation, plant, shop, office."

It is convenient to think of informing events in two forms: primary and vicarious. Primary informing events are those in which the subject is actually involved as a full or part-time worker. The newspaper delivery boy, the baby-sitter or the kids washing dishes are examples of roles and activities that provide first-hand (primary) experience with work. Vicarious informing events are those in which the subject experiences the occupation indirectly via reading about, observing and listening to workers, or exposure to work roles through the mass media.

Occupational informing events have a cognitive emphasis. "There is a core of cognitive material here that must be grasped by the students. To make intelligent decisions they must have learned about careers." (O'Hara, 1968)

Those professionally responsible for assisting young people in developing a sound background of occupational knowledge provide vicarious informing events. Pritchard (1962) succinctly describes the role of occupational information in the vocational development process:

> "They (particular occupational stimuli) should be used to provide symbolic or vicarious experiences with the world of work and to encourage projection into various occupational roles and future life patterns so that the counselee may 'try them on.'"

The problem then is how to provide occupational informing events that will allow the student to interpret the experience and convert it to personal occupational knowledge.

In summary, this occupational learning model suggests that career decisions are based on occupational knowledge which, in turn, is affected by the occupational informing events available to the explor ng youth. Such a frame of reference suggests the line of influence from occupational information to career decisions and points out the need to prepare youth through carefully planned rather than incidental informing events.

Going a step further, some authorities have expressed a sense or urgency about constructive intervention on the part of educators:

> "When the vocational learning situation is not formally structured, vocational responses will be less intellectual, less rational, more haphazard, more subject to trial-and-error." (O'Hara, 1968)
>
> "...the wise choice of an occupation requires accurate information about what occupations are available, what they require, and what they offer." (Hoppock, 1963)
>
> "Yes, youth can choose! But they must have help along the way of a systematic developmental nature that operates out of a solid theoretic position. Hit-or-miss activities are stop-gap or short-term, at best. Efforts to help youth must be long term, continual, and developmental." (McDaniel, 1968)

O'Hara's (O'Hara, 1968) theory of learning about vocations suggests that the effects of informing events on occupational knowledge depend upon two broadly construed conditions: (1) readiness of the students; and (2) the nature of the learning situation or informing event.

Readiness is taken to mean an expectation, a disposition to act on the information. The information that fits into a student's expectations, based on previous learning experiences, personal tastes and values, is more likely to influence him.

Vocational development research has shown that young people are ready to act on occupational information as early as the ninth grade. The Career Pattern Study directed by Donald E. Super thoroughly studied the vocational development of ninth grade boys in a typical small city high school. Super (1960) concluded that ninth grade boys "are clearly in an exploratory stage...(they) are ready to look into things, to try themselves out, but have not developed to a point at which it is reasonable or desirable to expect them to commit themselves to a vocation." The implications for vocational guidance at this grade level are spelled out by Super: "(Vocational guidance) should aim to ascertain what alternatives (in the plural, in most instances) might best be explored, to help the pupil to find and utilize appropriate explorations."

Gribbons studied a sample of metropolitan boys and girls at two-year intervals over seven years starting when the subjects were in eighth grade. He concluded that eighth grade students exhibited "...some significant degree of vocational maturity..in that the eighth grade subjects are able to project self-images in interviews the dimensions of which have significant predictive validities for subsequent career developments." (Gribbons and Lohnes, 1967)

The interview dimensions, called Readiness for Vocational Planning Scales (RVP Scales), showed systematic growth from early eighth to late tenth grade suggesting greater readiness for planning had developed during the intervening two and one-half years (Gribbons and Lohnes, 1968). Apparently many, but not all, youth make important gains during the ninth grade year in factors related to later occupational choices and satisfaction.

McDaniel (1968) challenged the notion that today's youth (ages 14-18) are not ready to make career choices. He supported a contrary assertion with arguments and data showing that youth biologically, educationally and, from a professional guidance viewpoint, are ready to choose. In summary, there appears to be enough evidence to support the assumption that ninth grade students exhibit a readiness to explore occupations.

The second theoretical determinant of increased occupational knowledge from an informing event is the nature of the learning situation (or event itself) its characteristics such as content, media and structure.

The content of an informing event--what is presented as material for the learner to act upon--has been the source of concern about occupational information for years. When printed material was the primary media, concern was expressed about reading level, accuracy and lack of undue bias. While these ramain appropriate concerns about information content, other aspects of the informing event's content appear to have more powerful influence. For example, Rusalem (1954) hypothesized that "the more intimate and the more emotional the contact, the more valid will be its contribution to decision-making and counseling."

Research conducted in the Palo Alto, California,school district has demonstrated the potency of presenting information about the plans and progress of local school graduates to ninth and tenth grade students (Yabroff, 1964, Gelatt, 1964, Peterson, 1968). There was an obvious advantage to using information about local events in the form of probabilities rather than data regarding national trends.

Hoyt and Cochran (1965) found that counselors and students preferred data based on characteristics and experiences of specific people in specific training programs when making decisions about the programs. They proceeded to develop printed information with this in mind. Whitfield and Glaeser (1968) demonstrated that high school students (in San Diego, California,County) reacted more favorably to localized occupational information than to conventional materials they had read previously. Counselors and teachers also reacted favorably to this content form.

Based on a survey of children aged 6 to 13, DeFleur (1963) showed that in-person observation about local occupations had more influence than did occupations seen on television but not in the local community on children's knowledge of occupational role.

Content appropriateness should take into account specificity of locale and the proximity of the source to the students' everyday experiences. Apparently localized information is more useful.

The effectiveness of occupational information can be improved when varied symbols are employed. Theoretically, the more symbols presented and the more they are structured so as to relate the unfamiliar to the familiar, the more effective is the learning situation (O'Hara, 1968).

Apparently students prefer multiple-media to printed materials or lecture alone. Goedeke (1951) found students and counselors reacted favorably to 15-minute television programs in the classroom. In that era, however, novelty may be difficult to separate from other aspects of the programs. Beachley (1958-59) reported a favorable reception to telecasts on occupational information from

junior and senior high school students. Wease, Eberly, and Iaconetti (1963) found that high school students preferred televised guidance information programs to regular homeroom guidance or study halls. Another class of students overwhelmingly preferred movies to printed materials as a means of informing them about occupations (Laramore, 1968). San Diego County students reported that they were favorably impressed by microfilmed occupational information (Whitfield and Glaeser, 1969). While these surveys are localized and rather informal, they present evidence supporting what many teachers might report from casual observation: students like movies or television more than printed materials and lectures when given a choice. Certainly this should have implications for the media employed in presenting occupational information.

Content and media are not the only variables important to making the learning situation more effective. O'Hara (1968) suggests the importance of pattern and structure of events and their distinctiveness--the event should clearly distinguish important information from unimportant. Evidence to support these hypotheses has not been generated in the literature on vocational guidance.

On the basis of this brief review, there is reason to expect that occupational informing events portraying more local people, places and events and presented through a popular media such as films or television might enhance the acquisition of occupational knowledge for rural ninth grade youth.

Part III: MEASUREMENT OF OCCUPATIONAL KNOWLEDGE

Occupational knowledge denotes, in part, identifying the names of occupations perceived as possibilities and those seen as alternate goals. Occupational possibilities includes occupations known and assumes that recollection of an occupational title implies it is "cognitively available" as a possibility. Occupational alternatives refers to the smaller set of occupations seen by the student as suitable for people such as himself.

Tyler (1969) sketched a theory where the knowledge of possibilities for future action is an essential prerequisite to conceptualizing life's decisions. The chooser in any situation faces a large number of possible actions. When a decision is approached with a restricted view of possibilities the likelihood of satisfying outcomes is limited. In the area of occupational decisions, the possibilities and alternatives recalled at one time appear to be the best available index of the possible actions as preceived by the chooser.

Tyler and Sundberg (1964) devised an instrument to assess young people's occupational possibilities structures and occupational alternatives structures. Their instrument has been adopted for this study and called The Occupational Possibilities Inventory (OPI). (A copy is included in Appendix A.) A simple count of the number of Occupational Possibilities listed and the Occupational Alternatives listed constitutes the raw scores for each variable. A higher number of occupations listed represents broader occupational knowledge. Tyler and Sundberg (1964) present data supporting the claim that their version of the OPI has test-retest reliability adequate for research purposes.

Preferred goals in most human performances may be distinguished along a hierarchy of status (valued accomplishments) or as clusters of behaviors satisfying alternate wants (ala Roe's classification system, 1956). Verbalized occupational

preferences are often conceptualized on hierarchies as level of aspiration and in alternate clusters as field of aspiration. Both appear to be relevant as descriptions of personal occupational knowledge. Stating occupational preferences can be thought of as one way of expressing the self-concept (Bordin, 1943). Thus it can be argued that occupational goal preferences are one form of expressing personal occupational knowledge. Level of aspiration and field of aspiration are two dimensions of this personal knowledge.

Level of occupational aspiration is widely used as a dependent variable in investigating the effects of social forces on career development. (See, for example, Sewell and Haller's review of educational and occupational perspectives of rural youth, 1964). Miller and Haller (1964) attest to the importance of the concept in social mobility behaviors and sociology of careers but point out the lack of adequate instruments for measuring the variable. But their Occupational Aspirations Scale asks subjects to tank occupations stated on the instruments rather than looking at the subject's expressed preferences.

Recent research has offered some support for Roe's structure of occupational fields arranged in a circular pattern. Observed vocational behaviors such as directions of job changes (Roe, et. al., 1966), occupational attractiveness (Hutchinson and Roe, 1968) and occupational preferences (Osipow, 1966) suggest there is some order to the occupational fields people select.

Subjects in this study were asked to name their first three occupational preferences on a questionnaire called the Occupational Information Inventory (OII). (Appendix B contains a copy of the OII.) Independent raters classified the expressed occupational preferences by level and field using Roe's system (Roe, 1957). An occupational level score and an occupational field score were assigned to each of the three preferences.

Four measures of occupational knowledge were computed from these scores. The variable named "Change in Level of Preferred Occupational Goal" was derived from comparisons of the occupational level score assigned the "first choice" occupation named by the subject on each of two testing occasions. Changing the level of preferred occupation goal--either up or down--is assumed to be associated with some additional knowledge about the correspondence between assessments of self and occupation. The variable "Change in Field of Preferred Occupational Goal" was derived in like manner by comparing the occupational level scores. Again increases in occupational knowledge are inferred from the observation of any change in field of preferred occupation.

Similarities among several occupational preferences named by an individual have been regarded as evidence of an awareness of the occupational structure. Super has argued that "consistency of vocational preferences shows intensity and validity of interest, and that it is better to work consistently toward one clear-cut goal than wastefully to keep shifting objectives (1961, p. 35)." In this study Level Discrepancy of Occupational Goals and Field Discrepancy of Occupational Goals serve as measures of the homogeneity of occupational preferences. The sum of the difference between each pair of level scores (e.g., level score of first choice minus level score of second choice, 2nd-3rd, and 1st-3rd) provide indices of the discrepancy of occupational preferences.

Adolescent perceptions of roles played by members of various occupations is another facet of occupational knowledge. These perceptions can be studied as stereotype "images" about personal traits and working situations in various

occupations. It has been assumed by several researchers that occupational stereotypes are to some extent influential in career decisions. Although a variety of methods have been used, the data usually substantiate the notion that secondary school students commonly associate different attributes with different occupations. (See the research reported by Holland, 1963; Dipboye and Anderson, 1961, Ulrich, Hechlik, and Roeber, 1966, and Hollander and Parker, 1969.)

The methodology employed by Holland (1963) was utilized in this study. Students were asked to complete sentences like the following: "Electricians are _____" for a brief list of occupations. Most completions to Holland's form were generally single adjectives so the instructions were altered to encourage more complete responses (See Appendix C for a copy of the Vocational Images Inventory.) The ten occupations used in the list were selected from a list of all occupations presented in the videotapes. Responses were classified on scales of attitudes (positive, neutral or negative) and accuracy. Appendix D contains the scales used to score the occupational image responses.

The frequency that students utilize available sources of information about occupations has been used as a behavioral index of counseling outcomes (e.g. Krumboltz and Thoreson, 1964, Krumboltz and Schroeder, 1965). Information-seeking incidents reported by a student can also be interpreted as those events identified by that person as informing and, as such, serves as an estimate of occupational knowledge "intake." A simple count of the number of information-seeking incidents students reported as heppening within the past month provided the raw score for the Information-Seeking Incidents variable. See Appendix E for scoring manual.

Recalling accurate facts about a preferred occupation represents another facet of occupational knowledge. The chooser who possesses such knowledge presumably is in a better position to anticipate the consequences of assuming a given role. This study borrowed liberally from the interview schedules employed by Gribbons (Gribbons and Lohnes, 1968) in a longitudinal study of career development. From their Readiness for Vocational Planning Interview Schedule the scale named "Factors in Occupational Choice" was adapted into questionnaire form as the Occupational Information Inventory (OII) (See Appendix F.). All questions on "Factors" scale were retained, two questions from the "Verbalized Strengths and Weaknesses" scale and two new items were added. The substantial reliabilities and construct and predictive validities reported by Gribbons and Lohnes (1968) are assumed to apply to questionnaire data from rural ninth graders as well. The responses were scored by an independent rater trained on Gribbons' manual (ibid., Appendix C).

A summary of the ten measures of occupational knowledge used in this study is presented in Table 1. Taken together, the ten variables provide a broad assessment of the occupational knowledge exhibited by rural ninth grade career planners.

A trial version of each of the three questionnaires was administered to the entire ninth grade class at a rural school not included in the study. As a result modifications were made in instructions and a selected sample of student responses were utilized for checking the consistency between raters. Table 2 presents the results of a comparison of the six variable scores assigned independently to twenty students by the author and a second scorer. (Female undergraduate college student majoring in the sciences.) Product-moment

Table 1

DESCRIPTION OF TEN SELECTED VARIABLES MEASURING OCCUPATIONAL KNOWLEDGE

Variable No.	Name of Variable	Description
1.	Occupational Possibilities (OCC POSS)	The number of occupations recalled and listed in five minutes.
2.	Occupational Alternatives (OCC ALT)	The number of occupations (from the list of possibilities) that are personally appropriate to later plans.
3.	Change in Level of Preferred Occupational Goal (OCC LEV)	Change in the ability level of "first choice" occupation.
4.	Change in Field of Preferred Occupational Goal (OCC FLD)	Change in the interest field of "first choice" occupation.
5.	Level Discrepancy of Occupational Goals (LEV DIS)	Differences in status level among first three occupational choices.
6.	Field Discrepancy of Occupational Goals (FLD DIS)	Differences in interest field among first three occupational choices.
7.	Positive Occupational Stereotypes (POS STER)	The number of generally favorable statements about ten selected occupations.
8.	Accuracy of Occupational Stereotypes (Acc Ster)	The general accuracy of stereotype statements about ten selected occupations.
9.	Information-Seeking Incidents (ISI)	The number of incidents reported where occupational information was sought from people, printed material or other sources within last month.
10.	Factors Considered in Occupational Choices (FACTORS)	Awareness of relevant factors in occupational choices including abilities, interests, values, personal strengths and weaknesses; accuracy of description of actual work in and requirements for preferred occupation.

correlations are generally at an acceptable level for exploratory research. However, the LEV DIS, ISI, and FACTORS scores were not coded with the consistency desired for rigorous experimental research. Nevertheless they were included as criterion on the basis of demonstrated usefulness in previous studies.

Table 2

INTER-JUDGE AGREEMENT IN SCORING OCCUPATIONAL KNOWLEDGE VARIABLES REPORTED AS PERCENTAGE OF AGREEMENT AND PRODUCT-MOMENT CORRELATION

VARIABLE	PERCENTAGE OR AGREEMENT (N=20)	PRODUCT-MOMENT CORRELATION (N=20)
Level of Preferred Occupational Goal	95%	.93
Field of Preferred Occupational Goal	95%	.99
Level Discrepancy of Occupational Goals	30%	.65
Field Discrepancy of Occupational Goals	70%	.93
Information-Seeking Incidents	40%	.61
Factors considered in Occupational Choices	(±2) 70%	.72

A Personal Data Form was administered following the post-test session in order to elicit information about several status and achievement variables. Appendix D contains a copy of the form. Questions were asked about school and community activities, classes and first-semester grades, father's and mother's occupations, and father's and mother's educational level. The information was used as reported by the student except for coding the father's occupation on the NORC scale (Reiss, 1961).

The eight occupational knowledge variables generally proved to be independent of each other. Inspection of Table 3 suggests that only a few intercorrelations are substantial. In general it was jusged that all eight offered empirically and conceptually different assessments of occupational knowledge. The one obvious exception is the high correlation between OCC POSS and OCC ALT. This was not unexpected since the latter measure is a part of the former measure. The two concepts are somewhat different and were retained as a separate variables for that reason.

Cross-correlations between pairs of pre-test and post-test occupational knowledge variables re-affirms their independence (see Table 4). At the same time scores on the same variable show a low consistency of order over time. The diagonal column in Table 4 contains the correlations between pre- and post-test scores for each variable. Aside from OCC POSS and OCC ALT, these intra-correlations are in the .300's and .200's. Apparently the order of students' scores changed from one testing to the other.

Table 3: INTERCORRELATIONS AMONG PRE-TEST OCCUPATIONAL KNOWLEDGE VARIABLES FOR STUDY SAMPLE (N=262)

		Pre-Test Occupational Knowledge Variables							
VARIABLE		1	2	3	4	5	6	7	8
OCC POSS	1								
OCC ALT	2	*517							
LEV DIS	3	-118	-020						
FLD DIS	4	077	-019	298					
POS STER	5	006	-032	-064	-068				
ACC STER	6	077	056	-071	056	-073			
ISI	7	141	017	-104	-104	063	227		
FACTORS	8	146	104	-115	-091	065	325	241	

* decimal points have been omitted

Table 4: CROSS-CORRELATIONS BETWEEN PRE-TEST AND POST-TEST OCCUPATIONAL KNOWLEDGE VARIABLES FOR STUDY SAMPLE (N-262)

			Pre-Test Occupational Knowledge Variables							
	VARIABLE		1	2	3	4	5	6	7	8
	OCC POSS	1	*697	322	-075	089	056	092	095	101
	OCC ALT	2	290	526	-029	-002	-054	086	037	021
Post-test Occupat-ional Knowledge Variables	LEV DIS	3	-084	-043	328	018	009	-016	-044	-084
	FLD DIS	4	088	034	109	339	-039	099	007	023
	POS STER	5	059	113	-024	-052	223	-038	-036	015
	ACC STER	6	037	041	-144	-034	129	366	194	191
	ISI	7	040	061	-001	082	088	166	304	155
	FACTORS	8	122	029	-105	-074	065	291	186	340

* decimal points have been omitted

The eight occupational knowledge variables are not consistently related to any of five selected correlates: school-community activities (member), first-semester grade-point-average, socio-economic status estimated on N.O.R.C. scales (Reiss, 1961) using father's occupation, father's education, and mother's education. The specific correlation figures appear in Table 5. ACC STER and FACTORS are correlated with GPA to a moderate extent and OCC POSS has a moderate correlation with activities. Neither parent's level of education nor father's occupational status (SES) are correlated with any variable at either testing. Apparently the occupational knowledge variables do not reflect subjects' relative standing on usual status or achievement factors.

Table 5: CORRELATES OF OCCUPATIONAL KNOWLEDGE VARIABLES (PRE-TEST AND POST-TEST)

OCCUPATIONAL KNOWLEDGE VARIABLES		CORRELATES				
(Pre-Tests)		Activities	G.P.A.	S.E.S.	Father's Ed.	Mother's Ed.
OCC POSS	1	*321	137	154	159	109
OCC ALT	2	181	084	130	058	058
LEV DIS	3	048	-073	-014	040	034
FLD DIS	4	092	015	044	093	-075
POS STER	5	066	176	110	-047	169
ACC STER	6	110	345	059	101	151
ISI	7	176	196	-030	027	152
FACTORS	8	089	328	133	009	184
(Post-Tests)						
OCC POSS	1	326	245	111	137	142
OCC ALT	2	131	024	002	027	-010
LEV DIS	3	022	135	-117	-067	007
FLD DIS	4	153	114	027	123	050
POS STER	5	009	-051	223	115	206
ACC STER	6	120	408	150	089	133
ISI	7	059	236	-012	027	150
FACTORS	8	131	376	032	041	095

* decimal points have been omitted

Overall the knowledge variables do not reflect large changes over the three-month period between testing sessions. Two exceptions are notable: OCC POSS and ACC STER. As can be seen from the data in Table 6, students in the entire sample showed marked gains on these two measures. The subjects generally named more occupational possibilities, supplied more accurate stereotypes of selected occupations, and revealed fewer positive or complimentary attitudes in their stereotypes on the post-test.

In summary, it appears that the eight quantitative occupational knowledge variables employed in this study are generally scored consistently, are generally empirically as well as conceptually independent, are somewhat inconsistent over a three-month period, are not generally associated with status-achievement indices, and about half show changes over time. Despite this mixture of psychometric properties, the variables appeared to show enough promise to warrant use in this study. Competing alternative methods were not any more attractive.

Table 6: INCREASES IN OCCUPATIONAL KNOWLEDGE VARIABLES FROM PRE-TEST TO POST-TEST (N=262)

		Pre-Test Raw Score		Post-Test Raw Score		Difference Raw Score
VARIABLE		X	SD	X	SD	X
OCC POSS	1	26.25	10.41	30.76	10.11	+4.51
OCC ALT	2	6.35	3.54	5.92	3.76	-0.43
LEV DIS	3	4.08	1.98	3.81	2.20	-0.27
FLD DIS	4	4.76	2.60	4.70	2.66	-0.06
POS STER	5	1.08	1.63	0.47	1.08	-0.61
ACC STER	6	4.40	2.40	6.00	2.80	+1.60
ISI	7	1.34	0.91	1.43	0.93	+0.09
FACTORS	8	14.93	4.00	14.84	3.76	-0.09

Part IV. STUDY PROCEDURES AND DESIGN

The entire ninth grade class from four small community high schools comprised the research sample. The schools were chosen specifically because: (a) they are located in the same rural area (northeastern Wisconsin); (b) they are near the work settings portrayed in the videotapes; and (c) local school officials were willing to participate in the study. A summary of comparisons on school-community size is presented below:

School-Community	Approximate Community Size	1969-70 Ninth Grade Enrollments (*) Male	Female
A	2000	31	41
B	800	31	40
C	900	39	52
D	500	9	19
		110	152

*Includes only students who were present for two testing sessions.

In addition, there are important differences between the economic characteristics of each community. B and D are small communities where agriculture and supporting businesses predominate. A's principal employer is an iron works while C contains some small industry in addition to agri-business firms. All four schools are located in the same Cooperative Education Service Agency (CESA), cooperate in the operation of a high school vocational education facility and share the services of a vocational guidance counselor and portable career information center that travels to each school.

Since there is some reason to believe that the community occupational structures differ in important ways, schools A and D and B and C were paired,thus providing students from both farming and small industrial community settings. The first pair was designated as "active control" and the other was designated as "experimental."

All students met for a full class period twice each week over a 14-week period and, under the leadership of a classroom teacher, studied about occupations found in their region of the state. The experimental group centered their discussions and reading around the family of occupations portrayed on 20-minute videotapes. The tapes, produced at the actual working sites in northeastern Wisconsin, were designed to stimulate an industrial tour but emphasized worker roles rather than production process or product. About half of the videotapes has been pre-tested on a wide student audience over a cooperative educational television project in northeastern Wisconsin during the 1968-69 school year. An opinion survey revealed widespread acceptance by administrators, teachers, students, and parents of a typical field trip presentation. The active control group spent a comparable amount of time on class discussion and reading about the same occupations using commercially produced reading materials designed to inform young people about occupations.

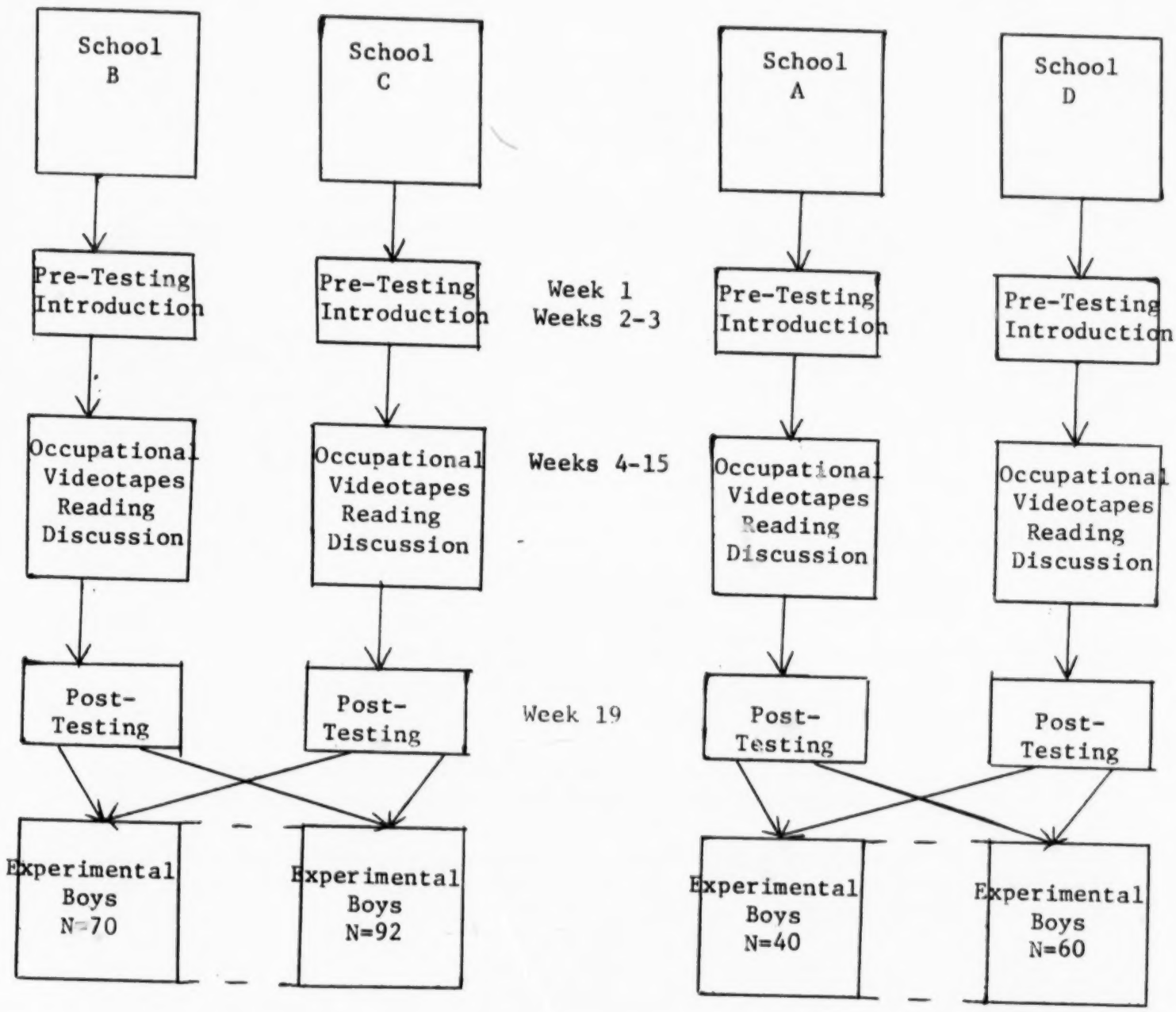
All students were exposed to two introductory programs where the importance of career planning was discussed with the aid of a 20-minute filmstrip each day. It was assumed that this procedure would blunt some of the novelty effect of the videotapes. Due to videotape equipment breakdowns and late mailings, some of the topics were reversed in order or postponed for about one week. However, all classes were exposed to information about the occupations listed during the twelve-week period.

Job families portrayed by the films in the following: paper industry occupations, machine trade occupations, marine construction occupations, food service occupations, office occupations, health occupations, puplic utility occupations, communication occupations (radio and television), conservation and recreation occupations, construction occupations, telephone occupations and petroleum occupations. See Appendix H for a typical weekly schedule of activities and topics.

Conditions in each school did not allow for the random assignment of students to treatments. Consequently not all factors threatening the internal validity of the experiment could be controlled and the design is more properly called "quasi-experimental." A Non-equivalent Control Group Design: as described by Campbell and Stanley (1963) offered the best alternative since all conditions could be met and, while not purely "experimental," it controlled for many factors. Such a design has the advantage of controlling the effects of historical occurences during the particular portion of the school year, normal student development, the fact of presenting and the kind of instrument used, and the retention of all subjects (control over systematic dropouts). Figure 1 illustrates the design pictorially.

The three questionnaire-type instruments described previously were administered to all students in two separate testing periods. The first occurred one week prior to the first class discussion on occupations and the second period was four weeks following the last discussion. All responses were coded by one person, a female college senior majoring in the sciences, who had been trained for several hours on the coding manuals.

Figure 1
Pictorial Representation of The Experimental Design



The general research question in this study (i.e., do students who view videotaped occupational field trips exhibit greater occupational knowledge than students who do not view the videotapes?) is approached through testing ten experimental hypotheses. The hypotheses are stated below:

Hypothesis 1: A lesser proportion of the experimental group than the control group will change the level of preferred occupational goal.

Hypothesis 2: A lesser proportion of the experimental group than the control group will change the field of preferred occupational goal.

Hypothesis 3: Experimental groups will obtain higher scores than control groups on occupational possibilities post-test when scores are adjusted for pre-test.

Hypothesis 4: Experimental groups will obtain higher scores than control groups on occupational alternatives post-test when scores are adjusted for pre-test.

Hypothesis 5: Experimental groups will obtain lower scores than control groups on level discrepancy post-test when scores are adjusted for pre-test.

Hypothesis 6: Experimental groups will obtain lower scores than control groups on field discrepancy post-test when scores are adjusted for pre-test.

Hypothesis 7: Experimental groups will obtain higher scores than control groups on positive stereotypes post-test when scores are adjusted for pre-test.

Hypothesis 8: Experimental groups will obtain higher scores than control groups on accuracy of stereotypes post-test when scores are adjusted for pre-test.

Hypothesis 9: Experimental groups will obtain higher scores than control groups on information-seeking incidents post-test when scores are adjusted for pre-test.

Hypothesis 10: Experimental groups will obtain higher scores than control groups on factors in choice post-test when scores are adjusted for pre-test.

Hypothesis 11: Boys will obtain scores no higher than girls on occupational knowledge post-tests when scores are adjusted for pre-test.

Hypothesis 12: There will be no higher scores among the eight sex--school groups on occupational knowledge post-tests when scores are adjusted for pre-test.

"Experimental groups" refer to the students in schools B and C while "control groups" are from schools A and D. "Lesser proportion" will be defined as a difference between proportions that has a probability of .05 or less. "Higher scores" or "lower scores" will be defined as a difference that is significant at or beyond the .05 level. Thus only when the differences between two groups exceeds the amount expected in 1 of 20 randomly selected cases will it be considered "higher" or "lower."

Changes in occupational goals were tallied by counting the number of students whose post-test occupational goal (first choice) was at a similar level and field was the pre-test goal. Hypotheses 1 and 2 were examined by computing chi-square to test the significance of difference between proportions for independent samples (Ferguson, 1959, pp. 169-71). Two-by-two contingency tables were prepared for each sex by each treatment. Thus four tables were generated and a chi-square statistic computed for each.

A separate, two-factor analysis of covariance method was applied to hypotheses 3-10. The factors of sex and school were controlled. Post-test scores on one of the occupational knowledge variables is the criterion but criteria means were adjusted for pre-test scores on the same variable. Large discrepancies between group means on the pre-test dictated that the analysis procedure take them into account. Analysis of covariance is the recommended procedure under these circumstances (McNemar, 1962, Chapter 18; Campbell and Stanley, 1963, p.23). Considering the problems accompanying other procedures such as matching (loss in N), "blocking" (impossible to assign treatments randomly), and utilizing difference or gain scores (no gain in accuracy of analysis against a list in precision). The analysis of covariance has been called "a delicate instrument" and requires that several assumptions be met if the results are to be meaningful (Elashoff, 1969). Elashoff's assumptions have been partially met in this study where they have not, interpretations will attempt to make her suggested allowances.

The analysis is divided into three steps: (1) comparing the four school groups, (2) comparing the two treatment groups and (3) comparing the larger intact groups (experimental school C vs. control school A). Only the second step is relevant to the hypotheses 3-10 but the first step is reported in order to show degree of differences among the four schools and the third to show differences between the two schools that had on-going counseling programs.

Additional analyses are planned to test for differences in the two sex groups (hypothesis 11) and the interaction effect (hypothesis 12) when both sex and school are controlled. Since the treatments included information about occupations where men are usually employed, the question about the different effects on each sex group is relevant. Hypotheses 11 and 12 are stated in abbreviated form since eight separate analyses are run for each.

The results of these analyses will provide comparisons on post-test occupational knowledge scores (1) between experimental and control groups; (2) between boys and girls, and (3) among school-sex groups. Thus the basic research question is answered through several analyses. Part V includes the results and an interpretation of their meaning.

Part V: RESULTS AND DISCUSSION

The frequency with which rural ninth grade students change the level or field of occupational goals is not associated with sex of the student or the experimental condition in this study. The number and percent of students changing are presented in Tables 7 and 8. Hypotheses 1 and 2 are clearly rejected: that is, it is not the case for this study that proportionally fewer experimentals than controls changed aspects of their occupational goals. Perhaps more interesting is the observation that strikingly <u>similar</u> proportions of the groups made changes. For example, about 30% of the boys and 35% of the girls change the field of their occupational goal over the 3 month period <u>regardless</u> of the information contained in the treatments.

Table 7: CHANGES IN LEVEL OF PREFERRED OCCUPATIONAL GOAL BY SEX AND EXPERIMENTAL CONDITION

	Change in Level of Preferred Occupation?			
Group	Yes	No	Totals	Percent Changing
Experimental Boys	23	47	70	32.9%
Control Boys	18	22	40	44.5%
All Boys	41	69	110	37.3%
		x^2 =1.12 (not significant)		
Experimental Girls	35	57	92	38.1%
Control Girls	25	35	60	41.7%
All Girls	60	92	152	39.5%
		x^2 =0.06 (not significant)		

Table 8: CHANGES IN FIELD OF PREFERRED OCCUPATIONAL GOAL BY SEX AND EXPERIMENTAL CONDITION

Group	Yes	No	Totals	Percent Changing
Experimental Boys	21	49	70	30.0%
Control Boys	12	28	40	30.0%
All Boys	33	77	110	30.0%
		x^2 = 0.000 (not significant)		
Experimental Girls	33	59	92	35.9%
Control Girls	21	39	60	35.0%
All Girls	54	98	152	35.5%
		x^2 = 0.004 (not significant)		

Differences among schools on the adjusted post-test means for the eight quantitative occupational knowledge variables are reported in tables 1 through 8 in Appendix J. A summary of the differences between the two experimental groups, and between school A ahd school C is reported in Table 9.

Table 9: SUMMARY OF ANALYSIS OF COVARIANCE SIGNIFICANT DIFFERENCES BETWEEN SELECTED GROUPS ON OCCUPATIONAL KNOWLEDGE VARIABLES

VARIABLE	Experimental (N=162) vs. Control (N=100)	School A (N=72) vs. School C (N=92)
OCC POSS	not significant	$p < .01$ (C>A)
OCC ALT	not significant	not significant
LEV DIS	not significant	not significant
FLD DIS	not significant	not significant
ISI	not significant	not significant
POS STER	not significant	not significant
ACC STER	$p < .05$ (X>C)	not significant
FACTORS	not significant	not significant

The experimental group scored significantly higher than the control group on only one on the eight variables, ACC STER. Therefore hypothesis 9 was not rejected and the general conclusion, based on the results of this study, is that viewing videotaped occupational field trips contributed to increased accuracy of stereotypes reported about those occupations. Differences between experimental and control groups on the other seven variables were not significant. Apparently the videotapes did not stimulate changes along these dimensions of occupational knowledge to the degree that was predicted.

The school C group differed from the school A group in the direction predicted on one variable, OCC POSS. Videotaped field trips stimulated students in School C to name more occupations as possibilities than did students in School A who were not exposed to the videotapes. These results are notable because each of these schools employed a full-time school counselor. Apparently the videotapes supplemented the counselor's work in improving this aspect of occupational knowledge. None of the remaining seven variables discriminated between the two school groups.

Boys differed from girls on four indices: LEV DIS, FLD DIS, ISI, and POS STER. Results of analysis for sex differences are reported in Table 10. Girls scored higher on the discrepancy scales (LEV DIS and FLD DIS) which means that there was greater diversity in the occupations chosen by girls. On the other hand, boys scored higher on the information-seeking variable (ISI) and the number of positive stereotypes (POS STER). Hypothesis 11 is rejected for the above four variables but is <u>not</u> rejected for OCC POSS, OCC ALT, ACC STER and FACTORS.

There are two variables on which significant interaction effects are the result: ISI and POS STER (see Table 10). When controls for sex <u>and</u> school are introduced significant differences among six-school groups arise. Apparently school A girls are set apart from other groups by scoring higher on both the ISI and POS STER scale; that is, this group has sought more occupational information and reported more favorable stereotypes than did other groups. (The above con-

clusion is the result of scanning the data and not by statistical tests.) Hypothesis 12 is rejected for the above two variables but is not rejected for OCC POSS, OCC ALT, LEO DIS, FLD DIS, ACC STER and FACTORS.

Table 10: SUMMARY OF ANALYSIS OF COVARIANCE SIGNIFICANT DIFFERENCES BETWEEN SEXES AND SCHOOL-SEX INTERACTIONS ON OCCUPATIONAL KNOWLEDGE VARIABLES

VARIABLE	Boys (N=110) vs. Girls (N=152)	Interaction Sex x School
OCC POSS	not significant	not significant
OCC ALT	not significant	not significant
LEV DIS	$p < .005$ G>B	not significant
FLD DIS	$p < .001$ G>B	not significant
ISI	$p < .01$ G>B	$p < .002$
POS STER	$p < .003$ B>G	$p < .039$
ACC STER	not significant	not significant
FACTORS	not significant	not significant

The results of testing the twelve hypotheses will be summarized in the form of positive, but tentative, statements. Viewing videotaped occupational field trips appears to influence the accuracy of stereotypes reported by rural ninth grade students. In two schools where counselors are employed, the videotapes appeared to have stimulated students to entertain a wider range of occupational possibilities. Rural ninth grade girls are more likely to present scattered occupational choices than boys and are less likely to seek occupational information or to state positive occupational stereotypes. Girls in school A stood out as being more likely to pursue occupational information and state positive stereotypes than several other school-sex groups.

There are several explanations that could be assigned to these results, but only two will be offered here. The first attempts to account for the limited positive results by concentrating on the measurement scales employed. Data employed in Table 6 raises questions about the degree of change in occupational knowledge measured by the instruments used in this study. The fact that there are few noticeable differences on the ten variables suggests that the scales are generally insensitive to changes in 9th graders' occupational knowledge over a three-month period. The exceptions are the variables named OCC POSS and ACC STER-- the two variables that discriminated between experimental groups. Apparently when the criteria are capable of measuring changes, those changes favor the experimental group.

Other characteristics of the scales may have influenced the results. The rather low correlations between pre- and post-test scores (see Table 4) suggest a re-ordering of students had taken place between the two tests on several scales. Perhaps the behaviors observed are not sufficiently stabilized to allow for the precise measurement required in testing hypotheses about treatments.

A second explanation for the limited positive results might be the fact that subjects remained in their intact classroom control conditions. Perhaps the forces of the unusual classroom situation were more powerful influences than the videotapes. It seems plausible that the presentation of 12 20-minute videotapes over a two-month period has comparatively little impact when competing with the other forces in the environment (e.g., peer pressures, occupational norms of the community, etc.). Had these factors been controlled by random assignment to conditions, perhaps more of the comparisons would be favorable. The fact that more differences were attributable to sex of student than to the treatment supports this explanation. Studying occupations has its effects to be sure. But conditions germain to the situation, such as sex role, peer group and the like, rather than the media (videotaped or printed materials) may have the more powerful impact.

The general conclusion that videotapes are effective in broadening occupational knowledge must be more specifically stated. There are several aspects of occupational knowledge that do not appear to be affected by this media presentation. On the other hand, the inclusion of videotaped occupational field trips in the vocational guidance program of rural schools may lead to increased accuracy in the students' images about the occupations portrayed and may widen the range of occupations with which they are familiar. Studying local occupations such as those used in this study may stimulate greater amounts of occupational information-seeking, greater number of favorable stereotypes, and greater homogeneity of vocational preferences for boys than it does for girls.

Such conclusions should be useful in shaping future programs in occupational information dissemination. First, if the occupational knowledge dimensions assessed in this study are important to a guidance program, then it would be advisable to present a different set of occupations to girls than was used here. Perhaps a new set of videotapes on female occupations could be produced. Second, the videotaped field trips, as a general technique, can have important impacts on the accuracy of occupational images and the range of occupational possibilities. When these two outcomes are desired the videotapes are the preferred method. Third, many rural ninth grade students have not stabilized their occupational choices along general dimensions such as field and level. The results of studying occupational information should not be expected to lead to stable responses to questions about future goals. Finally, student responses to most of the scales used in this study fluctuated considerably. Perhaps occupational knowledge is so vague at this age that we should expect scattered rather than directional changes in student development.

BIBLIOGRAPHY

Beachley, C. (1958) "Careers via closed circuit television." Voc. Guid. Q. 7:67-70.

Beilin, H. (1963) "Discussion" following "Symposium: New research in vocational development." Personnel Guidance J. 91:780-782.

Bordin, E.S. (1943) "A theory of vocational interests as dynamic phenomena." Educ Psychol. Measmt. 3:49-65.

Calia, V.F. (1966) "Vocational guidance: after the fall." Personnel Guidance J. 45:320-327.

Campbell, D.T. and J.C. Stanley (1963) "Experimental and quasi-experimental designs for research." reprinted from Gage, W.L. (Ed.), Handbook of Research on Teaching, Chicago: Rand, McNally and Co., 1963.

De Fluer, M.L. (1963) "Children's knowledge of occupational roles and prestige: Preliminary Report" Psysholo Reports 13:760.

Dipboye, W.J. and W.F. Anderson (1961) "Occupational stereotypes and manifest needs of high school students." J. Counsel. Psychol. 8:296-304.

Elashoff, J.D. (1969) "Analysis of Covariance: A Delicate Instrument." Amer. Ed. Res. J. 6:383-402.

Ferguson, G.A. (1959) Statistical Analysis in Psychology and Education. McGraw-Hill.

Fletcher, F.L. (1966) "Concepts, Careers an uriosity." J. Counsel. Psychol. 13:131-138.

Gellatt, H.B. (1964) The influence of outcome probability data on college choice. Unpublished doctoral dissertation, Stanford U.

Goedcke, M.T. (1951) "Vocational problems via video." Occupations

Gonyea, G.C. (1961) "Dimensions of Job Perceptions." J. Counsel Psychol. 8:305-312.

Gonyea, G.C. (1963) "Job Perceptions in relation to vocational preference." J. Counsel. Psychol. 10:20-26.

Grigg, C.M. and Middleton, R. (1960) "Community of orientation and occupational aspiration of ninth grade students." Social Forces 38:303-308.

Gribbons, W.D. and P.R. Lohnes (1967) "Seven-Year Follow-up validities for readiness for vocational planning scales." Personnel Guidance J. 46:22-26.

Gribbons, W.D. and P.R. Lohnes (1968) Emerging Careers. New York: Teachers College Press, T.C., and Columbia University.

Guilford, J.S. (1967) "Isolation and description of occupational stereotypes." Occ. Psychol. 41:57-64.

Gunn, B. (1964) "Children's conception of occupational prestige." Personnel Guidance J. 42:558-563.

Holland, J.L. (1963) "Explorations of a theory of vocational choice. Part I: Vocational images and choice." Voc. Guid. Q. 11:232-239.

Hollander, M.A. and H.J. Parker (1968) "Occupational Stereotypes and Needs: Their Relationship to Vocational Choice." Voc. Guid. Q. 18:91-98.

Hoppock, R. (1963) Occupational Information. New York: McGraw-Hill.

Hoyt, K.B. and L.W. Cochran (1965) "Communicating guidance information to specialty oriented students." A.V. Instr. 10:49-53.

Hutchinson, T.E. and A. Roe (1968) "Studies of occupational history: Part II. Attractiveness of occupational groups of the Roe system." J. Counsel. Psychol. 15:107-110.

Jordaan, J.P. (1963) "Exploratory behavior: The formation of self and occupational concepts" in Super, D.E. et. al., Career Development: Self-Concept Theory, New York: CEEB

Kvelsky, W.P. and R.C. Bealer (1967) "The relevance of adolescent's occupational aspirations for subsequent job attainments." Rural Soc. 32:290-301.

Laramore, D. (1968) "Jobs on film." Voc Guid. Q. 17:87-90.

Krumboltz, J.D. and Schwoeder, W.W. (1965) "Promoting career exploration through reinforcement." Personnel Guid. J. 44:19-26.

Krumboltz, J.D. and Thoreson, C.E. (1964) "The effect of behavioral counseling in group and individual settings on information-seeking behavior." J. Counsel. Psychol. 11:324-333.

McDaniel, C. (1968) "Youth: too young to choose?" Voc. Guid. Q. 16:242-249.

McNemar, Q. (1962) Psychological Statistics, 3rd Ed. New York: J. Wiley.

Miller, I.W. and A.D. Haller (1964) "A measure of level of occupational aspiration." Personnel Guidance J. 42-448-455.

Nelson, R.C. (1963) "Knowledge and interest concerning sixteen occupations among elementary and secondary school students." Ed. Psychol. Meas. 23:741-754.

O'Hara, R.P. (1968) "A Theoretical foundation for the use of occupational information in guidance." Personnel Guidance J. 46:636-640.

Osipow, S.H. (1966) "Consistency of Occupational Choices and Roe's Classification of Occupations." Voc Guid. Q. 14:285-286.

Peterson, B.G. (1968) Realism of educational decision-making by ninth graders and their parents. Unpublished doctoral dissertation, U. of Oregon.

Pritchard, D.H. (1962) "The occupational exploration process: some operational implications." Personnel Guidance J. 40:674-680.

Reiss, A.J. (1961) Occupations and Social Status. Glencoe, Ill: The Free Press.

Roe, A. (1956) Psychology of Occupations. New York: Wiley.

Roe, A., W.D. Hubbard, T.E. Hutchinson, and T. Bateman (1966) "Studies of occupational history: Part I. Job changes and the classification of occupations." J. Couns Psychol 13:387-393.

Rusalem, H. (1954) "New insights on the role of occupational information in counseling." J. Counsel Psychol. 1:84-88.

Samler, J. (1961) "Psycho-social aspects of work: a criteria of occupational information." Personnel Guidance J. 39:458-465.

Sewell, W.H. and A.O. Haller (1964) "Educational and Occupational Perspectives of Farm and Rural Youth." pp. 149-169 in Burchinal, L.G. (Ed.) Rural Youth in Crisis: Facts, Myth, and Social Change, Washington: U.S. Dept. H.E.W.

Sewell, W.H. and A.M. Orenstein (1965) "Community of residence and occupational choice." Am. J. Soc. 70:551-563.

Super, D.E. (1960) "The critical ninth grade: vocational choice or vocational exploration." Personnel Guidance J. 39:106-109.

Super, D.E. (1961) "Consistency and wisdom of vocational preferences as indices of vocational maturity." J. Educ. Psychol. 52:35-43.

Super, D.E. (1963) "Vocational development in adolescence and early adulthood: tasks and behaviors." pp. 79-93 in Super, D.E. et. al. Career Development: Self-Concept Theory. New York: CEEB

Tyler L.E. (1969) The Work of the Counselor, Third Edition. New York: Appleton-Century-Crofts.

Tyler, L.E. and N.D. Sundbert (1964) Factors effecting career choices of adolescents. Coop. Res. Proj. Rep. No 2455. Eugene, Oregon: U. of Oregon.

Ulrich, G., J. Hechlik, and E.C. Roeber (1966) "Occupational Stereotypes of High School Student." Voc. Guid. Q. 14:169-174.

Walker, K.F. "A study of occupational stereotypes." J. of Applied Psych. 42:122-124.

Wease, J., G. Eberly and L. Iaconetti. (1963) "Counselors on Camera." Bull. of NASSP 47:27-31.

Whitfield, E.A. and G.A. Glaeser (1969) "The mocrofilm approach to disseminating vocational information: an evaluation. Voc. Guid. Q. 18:82-86.

Yabroff, W.W. (1964) An Experiment in teaching decision-making, Research brief, No. 9, Sacramento: Bureau of Pupil Personnel Services, Calif. State Dept. of Education.

Zeisel, J.S. (1964) "The Job Outlook for Rural Youth." pp. 257-272 in Burchinal, L.G. (Ed.) Rural Youth in Crisis: Facts, Myth, and Social Change. Washington: U.S. Dept. H.E.W.

OCCUPATIONAL POSSIBILITIES INVENTORY - Form 2

Name _____

Date _____

School _____

Instructions: We would like to know something about the occupations and careers you are familiar with. List under one another all of the occupations you can think of in 5 minutes.

1. _____ 23. _____

2. _____ 24. _____

3. _____ 25. _____

4. _____ 26. _____

5. _____ 27. _____

6. _____ 28. _____

7. _____ 29. _____

8. _____ 30. _____

9. _____ 31. _____

10. _____ 32. _____

11. _____ 33. _____

12. _____ 34. _____

13. _____ 35. _____

14. _____ 36. _____

15. _____ 37. _____

16. _____ 38. _____

17. _____ 39. _____

18. _____ 40. _____

19. _____ 41. _____

20. _____ 42. _____

21. _____ 43. _____

22. _____ 44. _____

Now circle each occupation that you think you might be suited for, or you consider as appropriate for someone like you.

OCCUPATIONAL INFORMATION INVENTORY - FORM 2

Name _____

Date _____

School _____

Instructions: We are interested in learning about how you are making the very personal and very important decisions about what occupations to enter during your working lifetime. Regardless of how you answered these questions before, try to write the BEST and MOST COMPLETE report of your thoughts.

1. What occupations have you thought about as your possible life work? List the occupation you would MOST PREFER as Occupation A. Then list two others you have thought about.	2. What are the most important reasons you can give for doing this rather than something else? List your reason for thinking about each occupation you have listed. Be as specific as you can.
Occupation A:	Occupation A.
Occupation B:	Occupation B.
Occupation C:	Occupation C.

3. What facts should you know about yourself before choosing an occupation?

4. How much education is required of a person in Occupation A?

5. What does a person in Occupation A actually do at work?

6. Name a place where people are working at Occupation A.

7. What rewards do people receive from working in Occupation A?

8. What connection do you see between the school subjects you are now taking and the work you want to do later?

9. What abilities do you have that will help in the work you are planning?

10. What abilities do you lack that you feel would help you to be successful in Occupation A?

11. With whom have you discussed your occupation plans DURING THE PAST MONTH? Please list the people by position or relationship to you.

12. DURING THE PAST MONTH have you read any printed materials (books, magazines, pamphlets) about occupations? If YES, please describe EACH PIECE of materials. YES ____ NO ____

13. What other investigating regarding occupations have you done DURING THE PAST MONTH?

Appendix C

VOCATIONAL IMAGES INVENTORY - Form 2

Name _____

Date _____

School _____

Instructions: We would like to know what you think about when certain occupations are mentioned to you. Complete the following sentences by writing what you first think when you first hear these occupations. Then add a second sentence to help make your thoughts more complete.

1. Machinists are

2. Stenographers are

3. Electricians are

4. Practical nurses are

5. Tool and die makers are

6. Chefs are

7. Welders are

8. Diesel mechanics are

9. X-ray technicians are

10. Pulp digester operators (cookers) are

Appendix D

PERSONAL DATA FORM

Name _____ High School _____

Instructions: We are asking you to share information about yourself and your family. What you write will remain confidential and will be used in research work only. No one at your school will see this form. Please answer the following questions as completely as you can.

1. Check the school activities in which you have been involved this year:

____ football	____ band	____ school newspaper
____ basketball	____ choir or chorus	____ cheerleader
____ wrestling	____ all-school plays	____ pep club
____ GAA	____ debate	____ librarian
____ other (name) _____	____ other (name) _____	

2. List other clubs you belong to at school or in the community.
(For example: church youth group, 4-H club, etc.)

3. Name the classes you were taking last semester. Fill in the grade you earned for the semester.

Class	Grade	Class	Grade
_____	____	_____	____
_____	____	_____	____
_____	____	_____	____
_____	____	_____	____

4. What is your father's occupation? _____
What does he do on the job?

5. Does your mother work outside the home? _____
If YES, does she work full time? _____
What does she do on her job?

6. Check one of the following statements that best describes the education your father and mother have completed. Make one check for father and one for mother.

Father	Mother	
_____	_____	completed 8th grade
_____	_____	completed high school but did not graduate.
_____	_____	graduated from high school.
_____	_____	graduated from high school AND completed vocational training.
_____	_____	attended college but did not receive a degree.
_____	_____	graduated from college.

Appendix E

SCORING MANUAL FOR THE VOCATIONAL IMAGE INVENTORY (VII)

POS STER is scored as the number of positive statements written to complete the sentences. Only one statement is counted for each occupational stimuli (e.g. Electricians are . . .). The scores decides whether the statement(s) following each stimuli is positive, complimentary, denotes the "good" in the work, and scores one if it is.

ACC STER is scored by comparing statements to general descriptive information available in the Occupational Outlook Handbook. The statements are divided into "pieces" of occupational information defined as some fact or description that is judged relevant to the occupation. Accuracy is scored as the following three-point scale:

Score 0 for NA or only inaccurate or absurd or redundant or incomplete information.

Score 1 for conveying one piece accurate information about (1) work task, (2) work location, (3) wages, (4) status or prestige, or (5) employment outlook.

Score 2 for conveying more than one piece of accurate information.

Appendix F

SCORING MANUAL FOR THE "INFORMATION-SEEKING INCIDENTS" SCALE
(from responses to Occupational Information Inventory)

OII Item	Scoring procedure
11	Count number of people from whom advice was sought. Plurals count as two, count "parents" as two. Score is total number of people.
12	Count number of separate materials listed. Count only those mentioned by name or content.
13	Count number of other investigative incidents that are described.

Appendix G

SCORING MANUAL FOR THE "FACTORS CONSIDERED IN OCCUPATIONAL CHOICES" SCALE
(from responses to Occupational Information Inventory)

OII Item	Scoring Procedure
2A	Why? (first occupational choice)
2B	Why? (second occupational choice)
2C	Why? (third occupational choice)
	Score 4 - refers to three concepts (ability, interest or value); or two concepts plus previous experience; or information from an informed person.
	Score 3 - refers to two concepts; or one concept plus experience; or information from an informed person.
	Score 2 - refers to one concept; or experience; or information from an informed person.
	Score 1 - vague or general.
	Score 0 - no mention or irrelevant.
4	How much education is required to be a _____ (first choice)?
	Score 2 - very accurate and specific.
	Score 1 - some uncertainty or slight misinformation or plans to get information.
	Score 0 - No awareness or misinformation.
5	What does a _____ (first choice) do at work?
	Score 3 - accurate, detailed knowledge.
	Score 2 - general or partial knowledge.
	Score 1 - vague or minor aspect of job or confused about occupation.
	Score 0 - no awareness or misinformation

OII Item	Scoring Procedure
8	What connection do you see between the subjects you'll be taking next year and the work you want to do later on?
	Score 4 - mentions relationship of two subjects to intermediate or ultimate choice.
	Score 3 - mentions relationship of one subject or two subjects in the same area; or cites needs for chosen curriculum in intermediate or ultimate choice.
	Score 2 - mere mention of subject or general relation of course to intermediate or ultimate choice.
	Score 1 - general reference to future. Demonstrates little understanding.
	Score 0 - no understanding or sees no relationship.
9	Which abilities do you have that will help you in the work you are planning?
	Score 4 - mentions relationship to occupation of any one of the following: verbal, quantitative, two subjects, special ability needed in occupation.
	Score 3 - mentions one subject and relation to occupation.
	Score 2 - simple enumeration.
	Score 1 - non-scholastic references.
	Score 0 - no awareness or states ability that he has already mentioned as a weakness.
10	Which ability do you lack that you feel would help you to be successful as a _____ (first choice)?
	Score 4 - mentions relationship to occupation of one of the following; verbal, quantitative, two subjects, or special ability needed in an occupation; or mentions weakness plus a solution; or superior student who has had no difficulty and anticipates none.
	Score 3 - mentions one weakness and relation to job.
	Score 2 - simple enumeration or not sure weakness is involved in chosen occupation.
	Score 1 - non-scholastic weakness.
	Score 0 - no awareness; or mentions area which has already been mentioned as a strength in item 9.

Appendix H

FOCUS ON OCCUPATIONS

Unit on the study of occupations

Date	Activity, Topic
Nov 3 and 4, 1969	Distribute letter of introduction to entire class
Nov 5 (whole class)	Administration of questionnaires, Mr. Jepsen
Nov 10-11	Discussion and Filmstrip "Planning Ahead after High School"
Nov 12-13	Discussion and Filmstrip "How to Study Occupations"
Nov 17-18	Discussion of Health Occupations
Nov 19-20	Discussion of Machine Trade Occupations
Nov 24-25	Discussion of Office Occupations
Dec 1-2	Discussion of Paper Industry Occupations
Dec 3-4	Discussion of Marine Constructions Occupations
Dec 8-9	Discussion of Telephone Occupations
Dec 10-11	Discussion of Public Utility Occupations
Dec 15-16	Discussion of Food Service Occupations
Jan 5-6, 1970	Discussion of Communication Occupations
Jan 7-8	Discussion of Conservation and Recreation Occupations
Jan 12-13	Discussion of Construction Occupations
Jan 14-15	Discussion of Petroleum Occupations
Feb 11 (whole class)	Administration of questionnaires, Mr. Jepsen

Appendix J

Table J-1: SUMMARY OF ANALYSIS OF COVARIANCE OF OCCUPATIONAL POSSIBILITIES POST-TEST SCORES, USING OCCUPATIONAL POSSIBILITIES PRE-TEST SCORES AS COVARIATE.

Source	df	SS	MS	F	P<
Schools (C)	3	5839.594	1946.531	21.576	0.001
Sex (S)	1	53.535	53.535	1.253	0.264
C x S	3	51.121	17.040	0.399	0.754
Regression	1	8175.527	8175.527	191.420	0.001
Within	253	10805.609	42.710		
Total	262				

Table J-2: SUMMARY OF ANALYSIS OF COVARIANCE OF OCCUPATIONAL ALTERNATIVES POST-TEST SCORES, USING OCCUPATIONAL ALTERNATIVES PRE-TEST SCORES AS COVARIATE.

Source	df	SS	MS	F	P<
Schools (C)	3	410.140	136.713	13.461	0.001
Sex (S)	1	24.638	24.638	2.426	0.121
C x S	3	45.540	15.180	1.495	0.216
Regression	1	686.082	686.082	67.554	0.001
Within	253	2569.493	10.156		
Total	262				

Table J-3: SUMMARY OF ANALYSIS OF COVARIANCE OF LEVEL DISCREPANCY POST-TEST SCORES, USING LEVEL DISCREPANCY PRE-TEST SCORES AS COVARIATE.

Source	df	SS	MS	F	P<
School (C)	3	238.405	79.468	18.837	0.001
Sex (S)	1	33.394	33.394	7.916	0.005
C x S	3	3.568	1.189	0.282	0.838
Regression	1	115.615	115.615	27.406	0.001
Within	253	1067.316	4.219		
Total	262				

Table J-4: SUMMARY OF ANALYSIS OF COVARIANCE OF FIELD DISCREPANCY POST-TEST SCORES, USING FIELD DISCREPANCY PRE-TEST SCORES AS COVARIATE.

Source	df	SS	MS	F	P<
Schools (C)	3	446.462	148.821	24.742	0.001
Sex (S) 3	1	68.111	68.111	11.324	0.001
C x S	3	33.044	11.015	1.831	0.142
Regression	1	144.283	144.283	23.988	0.001
Within	253	1521.761	6.015		
Total	262				

Table J-5: SUMMARY OF ANALYSIS OF COVARIANCE OF INFORMATION-SEEKING INCIDENTS POST-TEST SCORES, USING INFORMATION-SEEKING INCIDENTS PRE-TEST SCORES AS COVARIATE.

Source	df	SS	MS	F	P<
Schools (C)	3	79.337	26.446	36.964	0.001
Sex (S)	1	4.300	4.300	6.010	0.015
C x S	3	10.930	3.643	5.092	0.002
Regression	1	23.001	23.001	32.149	0.001
Within	253	181.009	0.715		
Total	262				

Table J-6: SUMMARY OF ANALYSIS OF COVARIANCE OF POSITIVE STEREOTYPES POST-TEST SCORES, USING POSITIVE STEREOTYPES PRE-TEST SCORES AS COVARIATE.

Source	df	SS	MS	F	P<
Schools (C)	3	14.071	4.690	4.459	0.005
Sex (S)	1	9.182	9.182	8.729	0.003
C x S	3	8.939	2.980	2.833	0.039
Regression	1	15.583	15.583	14.813	0.001
Within	253	266.149	1.052		
Total	262				

Table J-7: SUMMARY OF ANALYSIS OF COVARIANCE OF ACCURACY OF STEREOTYPES POST-TEST SCORES, USING ACCURACY OF STEREOTYPES PRE-TEST SCORES AS COVARIATE.

Source	df	SS	MS	F	P<
Schools (C)	3	769.613	256.537	47.846	0.001
Sex (S)	1	0.498	0.498	0.093	0.761
C x S	3	26.952	8.894	1.676	0.173
Regression	1	300.730	300.730	56.088	0.001
Within	253	1356.515	5.362		
Total	262				

Table J-8: SUMMARY OF ANALYSIS OF COVARIANCE OF FACTORS CONSIDERED IN OCCUPATIONAL CHOICE POST-TEST SCORES, USING FACTORS CONSIDERED IN OCCUPATIONAL CHOICE PRE-TEST SCORES AS COVARIATE.

Source	df	SS	MS	F	P
Schools (C)	3	1253.966	417.989	32.943	0.001
Sex (S)	1	36.391	36.391	2.868	0.092
C x S	3	5.265	1.755	0.138	0.937
Regression	1	410.096	410.096	32.231	0.001
Within	253	3210.124	12.688		
Total	262				